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Idaho Operations Office
850 Energy Drive
Idaho Falls, Idaho 83401-1563

December 15, 1999

Mr. Charles M. Rice, Chair
Citizen's Advisory Board
Environmental Restoration Committee
C/O Wendy Lowe
Jason Associates Corp.
477 Shoup Ave.
Idaho Falls, ID 83402

SUBJECT: Comment Response for Operable Unit 4-13A Interim Action Proposed Plan for Waste Area Group (WAG) 4 – (OPE-ER-197-99)

Dear Mr. Rice:

Thank you for your review and comment recommendations on the WAG 4 OU 4-13A Proposed Plan. As always, we appreciate the time and effort the committee commits to this effort. The following is in response to those comments:

> **CAB Comment 1:** We understand that the term "interim action" is defined under the Comprehensive Environmental Remediation, Compensation, and Liability Act as any action that will not result in full remediation. We understand that some contamination sources at WAG 4 are not addressed by this Proposed Plan, hence the title of the document refers to it as an "interim action." We sincerely hope, however, that the proposed remedial actions described in the Proposed Plan will constitute final remedies for the contamination sources they are designed to address. The CAB has repeatedly expressed frustration at cleanup efforts that must be repeated, at great cost to taxpayers, because prior efforts were incomplete. **The INEEL CAB recommends that all remedial actions taken at WAG 4 completely and finally address the contamination present to avoid a need for follow-on remediation.**

Response to CAB Comment 1:
As the comprehensive remedial investigation and feasibility study for WAG 4 was nearing completion, nitrates were discovered in the groundwater beneath the site. At that time, alternatives for addressing surface contamination were ready to be presented to the public as recommended final actions. Instead of delaying remediation activities while investigation of the groundwater issue continued, the Agencies decided to present the surface contamination remedies as an interim action. This is consistent with INEEL's definition of interim action as a "cleanup response started as an 'early action' to reduce risk quickly or to expedite overall site cleanup." The Agencies' intention is that the remediation activities described in the proposed plan will constitute final remedies with respect to the surface contamination.

> **CAB Comment 2:** We understand that the contaminant of concern in the Disposal Pond is mercury. We also understand that analysis (based on the Toxicity Characteristic Leachate Procedure) of sediment from three of the 88 sampling locations in the pond bottom supports a conclusion that the sediment meets the definition for hazardous waste under the Resource Conservation and Recovery Act. We question, however, why phytoremediation was ruled out as an alternative technology that could be less costly than the preferred

alternative. In addition, the $9.9 million estimate for operating and monitoring costs under Alternative 4 seems very high. **The INEEL CAB recommends further evaluation of alternative technologies to reduce the costs associated with cleanup on the disposal pond.**

Response to CAB Comment 2:
Phytoremediation uses plants to extract contaminants from the soil. Contaminants generally are incorporated into the biomass (the plant). At the end of the growing season, the aboveground portion of the plant is collected and incinerated. The residual waste (ash) is stabilized and disposed of in a suitable landfill. This process treats the site by removing the contamination from the soil.

The cost-effectiveness and technical implementability of phytoremediation are very site-specific. Factors that affect whether phytoremediation is the best overall choice for a site include type of contaminants, concentration level, depth to which they are present, types of plants that will uptake the contaminants, and the need for additional management of plants. For instance, it is best used for contaminants that are within the upper 3 feet of soil, within the root zones of the plants used. Plants may require additional irrigation and soil amendments for optimal uptake. Treatability studies must be conducted to select the best plant species, determine contaminant extraction rates and costs, measure increased contaminant leaching due to irrigation, and other concerns.

Phytoremediation has been identified for use at the following INEEL sites:

> The Mercury Spill Area (TSF-08) in WAG 1 has been selected to be used for a phytoremediation treatability study to evaluate plant uptake factors and rates. That area is contaminated with mercury concentrations at 73.7 mg/kg to at least 2.5 feet below ground surface.
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> Phytoremediation is the selected remedy at five sites at Argonne National Laboratory - West (WAG 9). Mercury contamination at the ANL-W sites ranges from 2.62 to 8.83 mg/kg, and is limited to 2 feet below ground surface. The remediation goal for mercury at the ANL-W sites is 0.74 mg/kg. At an expected uptake rate of 2.5% per year, the remediation activities at ANL-W are expected to require 5 field seasons to reduce contaminants to acceptable levels.

Mercury contamination at the Disposal Pond is significantly greater than at the other sites designated for phytoremediation: 439 mg/kg at the Disposal Pond compared to 73.7 at the WAG 1 Mercury Spill Area (TSF-08) and a maximum of 8.83 at the WAG 9 ANL-W sites. To reach the preliminary remediation goal (PRG) of 0.74 mg/kg would require approximately 40 years at a 99.8% concentration reduction, which is very likely unattainable.

Therefore, implementability of phytoremediation for the Disposal Pond was determined to be low to uncertain, and the technology was screened from further consideration during the feasibility study.

CAB Comment 3: Text describing the preferred alternative for the Sewage Treatment Plant Drainfield states that "in approximately 189 years the risks from the cesium-137 contamination at the site could decrease to a level below the human health risk threshold." Table 5 states that cesium-137 has a half-life of 30 years. The table leads us to a conclusion that the cesium-137 would decay to acceptable levels in 90

years rather than 189 years. A presentation to the CAB explained the concept of a "preliminary remediation goal" which was, unfortunately, not well explained in the Proposed Plan. The document simply does not provide an adequate explanation for why it would take 189 years to achieve acceptable risk-based levels. **The INEEL CAB recommends clarification of these apparent discrepancies and/or inadequate explanations.** We cannot support the selection of Alternative 4 as the preferred alternative without a better understanding of how long it will take the cesium-137 to decay to acceptable levels.

Response to CAB Comment 3:
A preliminary remediation goal, or PRG, is a quantitative cleanup level. PRGs are used in planning remedial actions and assessing the effectiveness of remedial alternatives (see Section 9.3 of the RI/FS for more information about PRGs).

At the Sewage Treatment Plant Drainfield, the PRG cleanup level for cesium-137 was calculated to be 23 pCi/g for a hypothetical resident present **at the end of the 100-year institutional control period**. The calculation assumes that the site would remain under DOE control for 100 years, and institutional controls would be maintained during that 100-year period. The 23 pCi/g is the level of contamination that could be left at the site if remediation took place in the next few years.

Without remediation, the cesium-137 levels would decay to approximately 2.3 pCi/g in approximately 189 years. At a level of 2.3 pCi/g, the site could be released for unrestricted use.

CAB Comment 4: We appreciated the addition of items for information purposes throughout the text (marked with an "info" icon), with one exception. The INEEL CAB feels that the text located under the info icon on page 20 raises a flag related to polychlorinated biphenyls (PCBs). There was no obvious need to raise unnecessary public concerns, particularly given the very low level of PCBs detected at WAG 4. **The INEEL CAB recommends against the inclusion of alarmist information that serves no purpose in the document.**

Response to CAB Comment 4:
A proposed plan is a "brief summary . . . of the RI/FS" (OSWER Directive 9355.3-02, Section 1.2.6). The Transformer Yard (CFA-10) was a concrete pad used from 1985 to 1990 to store transformers. The area was named the "Transformer Yard Oil Spills" because PCB contamination from the transformers was suspected to be present. Although PCB levels were determined to be well within the threshold for industrial sites, the name was retained (with the deletion of "Oil Spills" for consistency.

The sidebar discussion was appropriate to include in the proposed plan to acknowledge the original suspicions and inform stakeholders of the minor change in name.

We hope that these explanations provide the necessary background information you require. If you have any further questions or comments, please contact Carol Hathaway at (208) 526-4049 or me at (208) 526-4392.

Sincerely,
Kathleen E. Hain
Kathleen E. Hain, Director
Environmental Restoration Program

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